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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,384	09/26/2003	Masato Iwanaga	031201	2733

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EXAMINER	
CANTELMO, GREGG	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/670,384	IWANAGA ET AL.	
	Examiner	Art Unit	
	Gregg Cantelmo	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-6 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/9/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed March 9, 2004 has been placed in the application file and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-6 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims recite derivatives of various materials but neither the claims nor specification clearly define the derivatives for each material. Thus the specification is not held to reasonably enable all derivatives for each material listed in the claims.

4. Claims 1-6 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for particular disclosed derivative for each material claimed, does not reasonably provide enablement for all derivatives of such materials.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. It appears that the specification does not define the term derivatives as recited in the claim but only shows particular materials without clearly defining what each derivative encompasses. Thus the specification is only enabling for those materials clearly specified for each material derivative and the claimed invention only appears to have support for those derivatives defined by the disclosure. Applicant is advised to amend the claims to define the derivatives commensurate with the scope of the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite derivatives of various materials but the claims fail clearly defines what each derivative encompasses. Thus the exact scope of the derivatives for each material listed in the claims is vague and indefinite. For example the paragraph bridging pages 8-11 admits that the derivatives are not specified. Thus the claimed invention is unclear since the entire scope of each claimed derivative is unspecified by the original disclosure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-025611 A (JP '611) in view of either JP 2002-298909 (JP '909), JP 2002-110229 (JP' 229) or JP 2002-050398 (JP '398).

JP '611 discloses of a non-aqueous electrolyte secondary cell comprising a positive electrode intercalating and deintercalating lithium ions, a negative electrode intercalating and deintercalating lithium ions, and a non-aqueous electrolyte having a non-aqueous solvent and an electrolyte salt, wherein, the non-aqueous electrolyte includes a vinylene carbonate derivative and a cyclic sulfite derivative (abstract).

A total mass of the non-aqueous solvent and the electrolyte salt is taken as 100, an amount of the vinylene carbonate derivative is 0.5 to 3 parts by mass per 100 total mass of the non-aqueous solvent and the electrolyte salt; and an amount of the cyclic sulfite derivative is 0.1 to 2 parts by mass per 100 total mass of the non-aqueous solvent and the electrolyte salt (abstract and examples as applied to claim 3).

The difference between claim 1 and JP '611 is that JP '611 does not teach of the electrolyte further including a phenylcycloalkane derivative, or an alkylbenzene derivative having a quaternary carbon directly bonded to a benzene ring.

Each of JP '909 and JP '229 discloses adding tert-alkybenzene derivatives to a lithium battery nonaqueous electrolyte (abstract).

The motivation for adding this derivative to the nonaqueous electrolyte is that it improves the cycling and discharge capacity of the electrochemical cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '611 by adding tert-alkybenzene derivatives to a lithium battery nonaqueous electrolyte as taught by either JP '909 or JP '229 since it would have improved the cycling and discharge capacity of the electrochemical cell.

JP '398 discloses adding phenylcyclohexane to a lithium battery nonaqueous electrolyte (abstract).

The motivation for adding phenylcyclohexane to the nonaqueous electrolyte is that it improves the safety and reliability of the battery and prevents overcharging of the cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '611 by adding phenylcyclohexane to the nonaqueous electrolyte as taught by JP '398 since it would have improved the safety and reliability of the battery and prevented overcharging of the cell.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '611 in view of either JP '909, JP '229 or JP '398 as applied to claim 1 above, and further in view of U.S. Patent No. 6,818,351 (Sunagawa).

JP '611 is drawn to lithium secondary batteries and employs lithium cobalt oxide positive electrode materials.

The difference not yet discussed is of the lithium cobalt oxide positive electrode material having a bulk density of 3.3 g/cm3 or more.

Sunagawa discloses using lithium cobalt oxide materials having a bulk density above 3.3 g/cm3 (abstract).

The motivation for using lithium cobalt oxide materials having a high bulk density is that it has improved load characteristics (abstract).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '611 by using lithium cobalt oxide materials having a high bulk density since it would have provided a battery having improved load characteristics.

8. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-025611 A (JP '611) in view of JP 2002-050398 (JP '398) and either JP 2002-298909 (JP '909) or JP 2002-110229 (JP '229).

JP '611 discloses of a non-aqueous electrolyte secondary cell comprising a positive electrode intercalating and deintercalating lithium ions, a negative electrode intercalating and deintercalating lithium ions, and a non-aqueous electrolyte having a non-aqueous solvent and an electrolyte salt, wherein, the non-aqueous electrolyte includes a vinylene carbonate derivative and a cyclic sulfite derivative (abstract).

A total mass of the non-aqueous solvent and the electrolyte salt is taken as 100, an amount of the vinylene carbonate derivative is 0.5 to 3 parts by mass per 100 total mass of the non-aqueous solvent and the electrolyte salt; and an amount of the cyclic sulfite derivative is 0.1 to 2 parts by mass per 100 total mass of the non-aqueous solvent and the electrolyte salt (abstract and examples as applied to claim 3).

The difference between claim 4 and JP '611 is that JP '611 does not teach of the electrolyte further including a phenylcycloalkane derivative and an alkylbenzene derivative having a quaternary carbon directly bonded to a benzene ring.

Each of JP '229 and JP '909 discloses adding tert-alkybenzene derivatives to a lithium battery nonaqueous electrolyte (abstract).

The motivation for adding this derivative to the nonaqueous electrolyte is that it improves the cycling and discharge capacity of the electrochemical cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '611 by adding tert-alkybenzene derivatives to a lithium battery nonaqueous electrolyte as taught by either JP '229 or JP '909 since it would have improved the cycling and discharge capacity of the electrochemical cell.

JP '398 discloses adding phenylcyclohexane to a lithium battery nonaqueous electrolyte (abstract).

The motivation for adding phenylcyclohexane to the nonaqueous electrolyte is that it improves the safety and reliability of the battery and prevents overcharging of the cell.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '611 by adding phenylcyclohexane to the nonaqueous electrolyte as taught by JP '398 since it would have improved the safety and reliability of the battery and prevented overcharging of the cell.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '611 in view of JP '398 and either JP '909 or JP '229 as applied to claim 1 above, and further in view of U.S. Patent No. 6,818,351 (Sunagawa).

JP '611 is drawn to lithium secondary batteries and employs lithium cobalt oxide positive electrode materials.

The difference not yet discussed is of the lithium cobalt oxide positive electrode material having a bulk density of 3.3 g/cm3 or more.

Sunagawa discloses using lithium cobalt oxide materials having a bulk density above 3.3 g/cm3 (abstract).

The motivation for using lithium cobalt oxide materials having a high bulk density is that it has improved load characteristics (abstract).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '611 by using lithium cobalt oxide materials having a high bulk density since it would have provided a battery having improved load characteristics.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is 571-272-1283. The examiner can normally be reached on Monday to Thursday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregg Cantelmo
Primary Examiner
Art Unit 1745

May 23, 2006